ELEMENT 9: MONITORING, MEASUREMENT AND PROGRM MODIFICATIONS

The City of San Jose has been reporting to regulatory agencies (State and Regional Water Boards) and keeping statistics on all SSOs for the past four (4) years, as well as monitoring other California collection agency statistics. Annual SSO reports have been submitted to Region 2 Water Board for calendar years 2005, 2006 and 2007.

On-going development of sanitary sewer database is continuing to enable the City to better monitor and report SSOs, blockages and backups due to FOG, roots and other sewer system failures. The City will also enhance the investigations of their causes, such as structural problems, capacity, type of debris, and pumping facility component failure as these and other indicators are of value in monitoring the program. If necessary, projects will be developed to rehabilitate or replace system components based on sound asset management decisions.

The City will also be enhancing a formal methodology to monitor the implementation effectiveness of each SSMP element, and will be working on the audit element to ensure that City remains in compliance with the WDR. Changes and updates to the SSMP will be made as necessary, based on the results of future evaluations.

The City of San Jose's Sanitary Sewer Maintenance Program's primary goal is to ensure proper sanitary sewage flow while minimizing blockages and other system malfunctions that may have significant health, environmental or property damage impacts. The Program includes all maintenance and operational activities necessary to sustain the 2,200-mile collection system. The Sanitary sewer maintenance annual budget has increased from $8.8M in fiscal year 06-07 to $11.6 M for fiscal year 08-09.

The Program sets performance targets and continuously monitors their achievement rates of preventive and corrective maintenance activities. Some of the performance criteria that are monitored are:

- Percent of sewer lines without obstructions
- Percent of blockage cleared within four hours of notification
- Percent of repairs completed within certain time frame, depending on the urgency of the repair
- Miles of sanitary sewer lines cleaned
- Number of sanitary sewer min line stoppage cleared
- Miles of sanitary sewer lines inspected by video

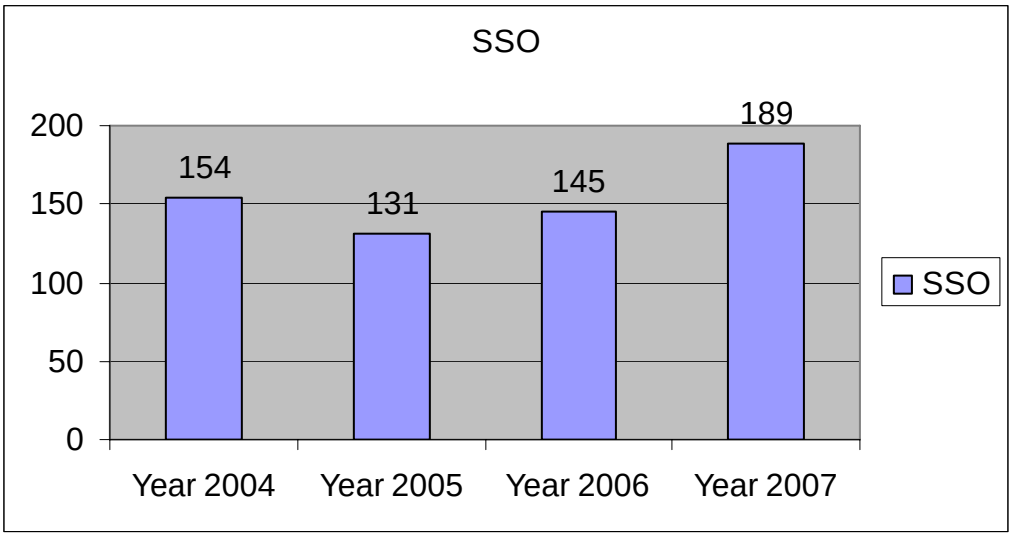
The following tables are examples of monitoring and performance evaluation of sewer maintenance:

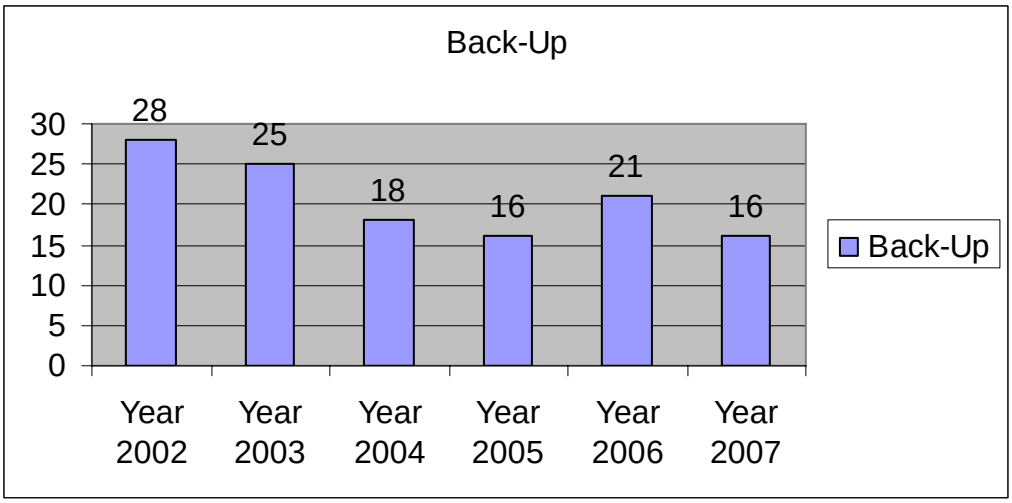
Core Service: Sanitary Sewer Maintenance
Transportation Department

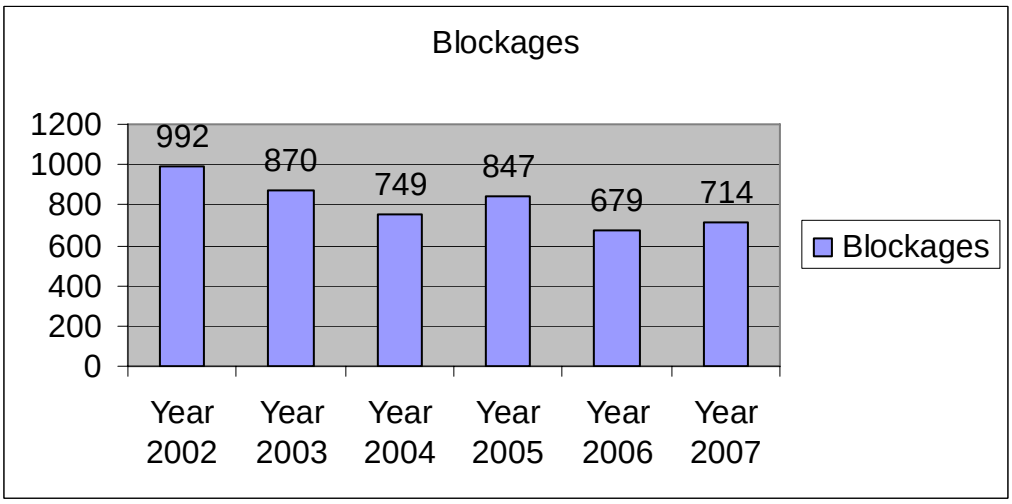
Performance and Resource Overview

Sanitary Sewer Maintenance Performance Summary	2006-2007 Actual	2007-2008 Target	2007-2008 Estimated	2008-2009 Target
% of sewer line segments without Obstruction	98%	97%	98%	98%
Sanitary Sewer cost to budget ratio	0.91	1.00	0.87	1.00
% of blockages cleared within 4 hours of notification	87%	90%	87%	90%
% of in-house non-emergency repairs completed within established time guidelines: (Class A – 20 days: usage available, but less than full capacity Class B – 35 days; usage available, and at full capacity)	45%	50%	45%	50%
% of customers rating services good or better based upon timeliness and effectiveness (rating of 4 or greater on a 1 – 5 scale)	97%	95%	97%	95%

Activity & Workload Highlights	2006-2007 Actual	2007-2008 Forecast	2007-2008 Estimated	2008-2009 Forecast
Miles/number of sewer line segments	2,195/47,735	2,200/48,000	2,200/48,000	2,200/48,000
Miles of sanitary sewer lines cleaned	508	500	500	500
Number of sanitary sewer main line stoppages cleared	796	1,000	800	800
Miles of sanitary sewer lines inspected by video	45	40	48	45







In addition to performing sewer line cleaning and repairs, the sanitary sewer staff perform other activities to sustain a functioning system. System performance and deficiencies are monitored through video and physical inspection. Engineering staff investigate and mitigate chronic blockages and unacceptable sewer odors and take measures such as chemical injection, sealing off the emission holes (forcing foul air to flow through bio-filters for treatment), and using ferrous chloride to reduce odor-causing sulfides. Caustic soda is also used during the hot summer months to prevent odors. Thirteen pump stations, two soil-bed bio-filters, and one chemical injection station are also managed (operated, maintained, monitored) to ensure the sanitary sewer system operates properly.

The documents used for monitoring, measurement and program modification requirements are as follows:

- Sewer System Management Plan (SSMP);
- Annual SSO Reports;
- Monthly Blockage Reports;
- Sewer Master Plans;

- SMS Database showing work planned, completed and finds.

The Department of Environmental Services maintains information, monitors and reports the following:

- A database with all food service facilities and grease generating sites;
- Inspect all of these facilities on a one to three year frequencies depending on the issues identified on each site;
- All issues identified on each site are resolved during the inspection by using appropriate educational outreach materials and enforcement;
- Monitors all grease hot spots in the sewer lines as identified by the sewer crews and works on identifying the sources and resolving some of the reoccurring problems;
- Annually report number of facilities inspected and grease investigation conducted. These numbers are included in both the Annual Urban Runoff Management Report and the Annual Pollution Prevention Report.

The City's Department of Public Works is in the process of identifying cost effective ways to assess the condition of the sewer system. The process includes setting up standards and tracking system for condition assessment. A computerized system will be used to track pipeline condition, and monitor and document results of condition assessment and rehabilitation projects. Currently City's CCTV crew is only responsible for CCTV related to routine cleaning, repair and customer complaints or emergency response. Therefore, CCTV for system-wide pipe inspection will be contracted out. A pipeline risk and failure analysis program will also be developed through the condition assessment effort.

The Department of Public Works is planning to develop a server- and GIS-based Sewer Asset Management System. Oracle Spatial will be used as underlining database to store images, data, documents, and information of the sewer system.

Roles and Responsibilities

The City plans to keep the SSMP current and useful over time by revisiting and updating each element at least every two years. The person responsible for the SSO reporting process, record keeping and updating the reporting guidelines is an Associate Engineer (Philip Lee) in the Department of Transportation. Other roles are as follows:

- SSMP Team – DOT, ESD and DPW staff
- SSMP Audit Team – DOT, ESD and DPW staff
- City wide Asset Management Team – DOT and DPW staff